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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,701	12/01/2004	Tatsuya Kato	890050.514USPC	6724

500 7590 10/20/2006

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EXAMINER	
RIVERO, MINERVA	

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 10/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/516,701	KATO ET AL.	
	Examiner	Art Unit	
	Minerva Rivero	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 24-A-51 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 24-A-51 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date [redacted].
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In the Remarks filed 7/21/06 Applicants cancelled claims 1-23, added claims 24-51, and submitted arguments for allowability of pending claims.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 25, 40 and 43, and their dependent claims, 26-32, 40-42, and 44-51, respectively, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 25, 40 and 43 recite 'modulating the power of the laser beam in accordance with the pulse train patterns to record third test signals'. It is noted that Applicants' Specification does not disclose recording, nor reproduction, of 'third test signals'.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 24, 35 and 39, are rejected under 35 U.S.C. 103(a) as being anticipated by Lee *et al.* (US Patent 6,404,712), hereinafter Lee, in view of Koishi *et al.* (US Patent 6,611,481), hereinafter Koishi.

6. Regarding claims 24 and 39, Lee discloses a method for determining a pulse train pattern including a pulse whose level is set to a level corresponding to a level of a recording power set to be higher than a reproducing power and a pulse whose level is set to a level corresponding to a level of a bottom power set to be higher than the reproducing power and adapted for modulating the power of a laser beam used for recording data in a write-once type optical recording medium, the method comprising:

varying the level of the bottom power while fixing the recording power at a predetermined level (Col. 6, Lines 39-42; *increasing a bias power level by one unit if jitter is exceeds a reference value, correcting a write power by increasing a bias power level*, Col. 14, Lines 41-48 and 62-67; Fig. 5, steps 54 and 56);

modulating the power of the laser beam in accordance with the pulse train patterns to record first test signals in the write-once type optical recording medium (*recording pulse-width modulated data*, Col. 2, Lines 32-34; *write-once CD*, Col. 4, Lines 33-35);

reproducing the first test signals (*detecting the optimal writing power while reproducing the test data and examining its quality*, Col. 2, Lines 13-19; Fig. 8, steps 11 and 24);

varying the level of the recording power while fixing the bottom power at the optimum level (*recording test data using varying power levels*, Col. 3, Lines 2-9 and 20-26);

modulating the power of the laser beam in accordance with the pulse train patterns to record second test signals in the optical recording medium (*recording pulse-width modulated data*, Col. 2, Lines 32-34);

reproducing the second test signals (*reproducing the test data and examining its quality*, Col. 2, Lines 13-19; Fig. 8, steps 11 and 24); and

determining an optimum level of the recording power based on the thus reproduced second test signals (*detecting the optimal writing power while reproducing the test data and examining its quality*, Col. 2, Lines 13-19; Fig. 8, steps 11 and 24).

However, Lee *et al.* do not disclose but Koishi *et al.* do disclose determining an optimum level of the bottom power based on the thus reproduced first test signals (Col. 6, Lines 39-42; *increasing a bias power level by one unit if jitter is exceeds a reference*

value, correcting a write power by increasing a bias power level, Col. 14, Lines 41-48 and 62-67; Fig. 5, steps 54 and 56).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to supplement the teachings of Koishi *et al.* by determining an optimum level of the bottom power based on the thus reproduced first test signals, in order to optimize a bottom power level since the bottom power is a component of the writing pulse and therefore contributes to an optimum recording.

7. Regarding claim 35, Lee further discloses the optimum level of the recording power is determined based on at least one of jitter and error rates of the reproduced second test signals (*examining jitter characteristic in order to determine the optimal recording power*, Col. 2, Lines 13-18).

8. Claims 33, 34, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee *et al.* (US Patent 6,404,712), in view of Koishi, as applied to claims 24 and 39 above, further in view of Finkelstein *et al.* (US Patent 5,185,733).

Regarding claims 33, 34 and 42, the combined teachings of Lee *et al.* and Koishi do not explicitly disclose but Finkelstein *et al.* do disclose the optimum level of the bottom power is determined based on amplitudes of the reproduced first test signals, and the optimum level of the bottom power is determined as a level of the

bottom power when the amplitude of the reproduced first test signal becomes maximum (*setting laser power level for which the readback signal amplitude is maximal*, Col. 9, Lines 59-61).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to supplement the combined teachings of Lee *et al.* and Koishi *et al.* and the optimum level of the bottom power is determined based on amplitudes of the reproduced first test signals, and the optimum level of the bottom power is determined as a level of the bottom power when the amplitude of the reproduced first test signal becomes maximum as disclosed by Finkelstein *et al.*, since using the laser power level represented by the maximum signal amplitude provides an optimum recording laser power level for ensuring precise and faithful digital recording, as further disclosed by Finkelstein *et al.* (Col. 5, Lines 14-19).

9. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee, in view of Koishi, further in view of Hintz (US Patent 5,458,941).

Regarding claim 36, the combined teachings of Lee and Koishi do not disclose but Hintz does disclose the optical recording medium further comprises a light transmission layer, and a first recording layer and a second recording layer formed between the substrate and the light transmission layer, and is constituted so that the at least two recording marks are formed by projecting the laser beam thereonto, thereby

mixing an element contained in the first recording layer as a primary component and an element in the second recording layer as a primary component (Col. 4, Lines 6-11).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to supplement the combined teachings of Lee and Koishi and have the optical recording medium further comprise a light transmission layer, and a first recording layer, and is constituted so that the at least two recording marks are formed by projecting the laser beam thereonto, thereby mixing an element contained in the second recording layer as a primary component, as disclosed by Hintz, in order to effectively record marks in a multilayer optical disk.

10. Claims 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee, in view of Koishi, as applied to claims 1 and 18 above, in view of Hintz (US Patent 4,458,941), further in view of Yasuda *et al.* (US 6,511,788).

11. Regarding claim 37, the combined teachings of Lee, Koishi and Hintz do not disclose but Yasuda *et al.* do disclose data are recorded in the optical recording medium by projecting a laser beam having a wavelength equal to or shorter than 450 nm thereonto (Col. 4, Lines 14-18).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to modify the combined teachings of Lee , Koishi and Hintz, by having data recorded in the optical recording medium by projecting a laser beam having

a wavelength equal to or shorter than 450 nm, since it enables a larger recording capacity, as further disclosed by Yasuda *et al.* (Col. 4, Lines 14-18).

12. Regarding claim 38, Yasuda *et al.* disclose the data are recorded in the optical recording medium by employing an objective lens and a laser beam whose numerical aperture NA and wavelength λ satisfy $\lambda/NA \leq 640$ nm [thus $NA/\lambda \geq 1.54$], and projecting the laser beam onto the optical recording medium via the objective lens ($NA/\lambda \geq 1.20$, Col. 9, Lines 41-42).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to modify the combined teachings of Lee *et al.*, Koishi *et al.* and Hintz by having the data recorded in the optical recording medium by employing an objective lens and a laser beam whose numerical aperture NA and wavelength λ satisfy $\lambda/NA \leq 640$ nm, as disclosed by Yasuda *et al.*, since in order to raise a recording density a NA/λ ratio must be raised accordingly, as further disclosed by Yasuda *et al.* (Col. 10, Lines 6-7).

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minerva Rivero whose telephone number is (571) 272-7626. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MR 10/15/06

WAYNE YOUNG
SUPERVISORY PATENT EXAMINER